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Single injection reverses type 2 diabetes symptoms in mice without side effects

By [Darren Quick](#)
August 6, 2014

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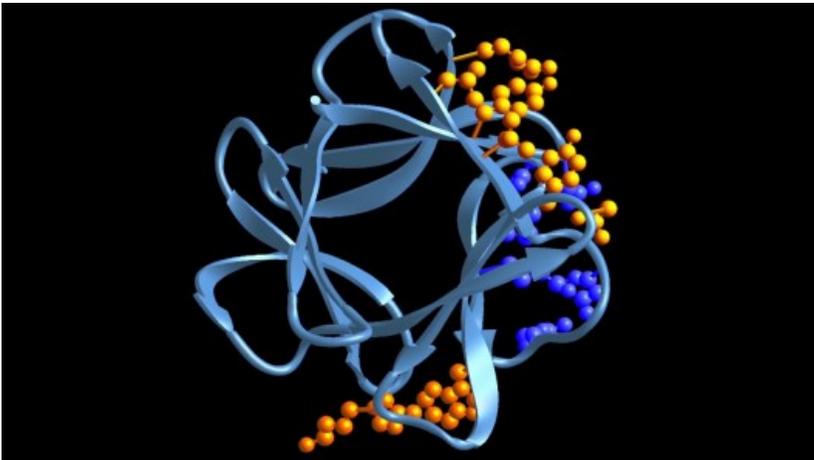
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Researchers at the Salk Institute have found that the FGF1 protein shows

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Researchers at the [Salk Institute](#) have found that the FGF1 protein shows promise for the development of safer, more effective diabetes drugs

There are numerous research efforts underway to develop new treatments and improve the lives of people suffering type 2 diabetes, whose ranks have increased dramatically in recent decades due in large part to the so-called obesity epidemic. A new generation of safer and more effective diabetes drugs could be in the offing with researchers at the Salk Institute discovering that when mice with diet-induced diabetes were given a single injection of a protein, their blood sugar levels were restored to a healthy range for more than two days.

Although type 2 diabetes can sometimes be managed through a healthy diet and regular exercise in the initial stages, tablets that boost the body's production of insulin are generally prescribed as the disease progresses. Such tablets can have side effects, including nausea and diarrhea, and aren't suitable for everyone, such as pregnant women and those with severe liver, kidney or heart disease. They can also cause blood glucose levels to drop too low, potentially resulting in hypoglycemia.

Now Salk researchers have found that injecting obese mice with the equivalent of type 2 diabetes in humans with a single dose of protein FGF1 quickly restored their blood glucose levels to normal levels where they remained for more than two days. Importantly, even when given high doses, the mice suffered none of the side effects common to most current diabetes treatments, such as weight gain or heart and liver problems.

"With FGF1, we really haven't seen hypoglycemia or other common side effects," says Salk postdoctoral research fellow Jae Myoung Suh. "It may be that FGF1 leads to a more 'normal' type of response compared to other drugs because it metabolizes quickly in the body and targets certain cell types."

Like the mechanism of insulin resistance that causes diabetes, the team says the mechanism responsible for FGF1 normalizing blood sugar levels isn't fully understood. But despite FGF1 being a growth factor, the team found that its ability to stimulate growth was independent of its effects on blood glucose levels, thereby increasing the chances of it being used to develop safer, more effective diabetes drugs.

"We want to move this to people by developing a new generation of FGF1 variants that solely affect glucose and not cell growth," says [Ronald M. Evans](#), director of Salk's Gene Expression Laboratory. "If we can find the perfect variation, I think we will have on our hands a very new, very effective tool for glucose control."

Evans and his team are planning to conduct human trials of FGF1, but admit fine-tuning the protein into a therapeutic drug will take time.

The team's paper is published in the journal *Nature* and a video detailing the discovery can be viewed below.

Source: [Salk Institute](#)

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1 Rule of a flat stomach :

Cut down a bit of stomach fat every day by using this 1 weird old tip.



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